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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/622,504

07/21/2003

Satoshi Seo

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EXAMINER

GARRETT, DAWN L

ART UNIT

PAPER NUMBER

1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/622,504

Applicant(s)

SEO ET AL.

Examiner

Dawn Garrett

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 1,2,4-13 and 15-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,14 and 23-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2-8-07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 8, 2007 has been entered.
2. Claims 1-32 are pending. Claims 3, 14 and 23-32 are under consideration. Claims 1, 2, 4-13 and 15-22 are withdrawn as non-elected.
3. The rejection of claims 3, 14 and 23-32 under 35 U.S.C. 103(a) as being unpatentable over Bernius et al. (US 2002/0153523) in view of Kono et al. (US 5,917,693) in further view of Nakayama et al. (US 5,943,154) as previously set forth is withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 14, 27, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamano et al. (US 5,811,834) in view of Kono et al. (US 5,917,693) in further view of Lamansky et al. (US 2004/0004433 A1). Tamano et al. discloses organo-electroluminescence devices comprising on a substrate an ITO electrode, a hole-injecting layer, a light-emitting layer, an electron-injecting layer and a cathode. The hole injecting material is taught to include an

Art Unit: 1774

electrically conductive polymer (see col. 25, lines 64-67). Tamano et al. further teaches the hole injecting material may be sensitivity-increased by incorporating an electron-accepting material (see col. 26, lines 32-34).

Tamano et al. fails to teach polyaniline specifically as the electrically conductive polymer. Kono et al. teaches in analogous art electrically conductive polymer compositions comprising polyaniline and an electron acceptor (see abstract). It would have been obvious to one of ordinary skill in the art to have selected polyaniline for the electrically conductive polymer of the Tamano et al. device, because one would expect the polyaniline to be suitable as the electrically conductive polymer of the Tamano et al. device, since it is described by Kono et al. as electrically conductive.

Tamano et al. also fails to teach specifically a compound according to applicant's formula 3 as the electron accepting material. Lamansky et al. teaches, in analogous art, that tetrafluoro-tetracyanoquinodimethane (F₄-TCNQ), which reads upon instant formula 3, is a known electron acceptor material for addition to a hole injecting buffer layer of an organic electroluminescent device (see par. 67 and 126). It would have been obvious to one of ordinary skill in the art to have selected F₄-TCNQ as an electron acceptor material for the Tamano et al. hole injecting layer, because Lamansky et al. clearly teaches the compound as an electron acceptor material for an OLED hole injecting buffer layer and one would expect the compound to be similarly useful as the electron acceptor in the Tamano et al. device. The hole injecting layer rendered obvious by Tamano et al. is deemed to read upon applicant's "buffer layer over the anode".

6. Claims 25, 26, 28, 29, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamano et al. (US 5,811,834) in view of Kono et al. (US 5,917,693) in view

Art Unit: 1774

of Lamansky et al. (US 2004/0004433 A1) and in further view of Epstein et al. (US 6,235,414 B1). The rejection of claims 14, 27 and 30 are relied upon as set forth above. Kono et al. fails to specifically a particular *form* of polyaniline that is used as the electrically conductive polymer. Epstein et al. teaches emeraldine is a well known form of polyaniline useful in a charge injection layer of a light emitting device (see abstract and col. 4, lines (60-63). It would have been obvious to one of ordinary skill in the art to have selected the emeraldine form of polyaniline to use as the electrically conductive polymer, because Epstein et al. teaches it is a well-known and used form of polyaniline and would be expected to be similarly useful as a charge injector in other devices. Because the references disclose the same materials set forth by applicant, the redox properties of claims 25, 28, and 31 are deemed to be inherent.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamano et al. (US 5,811,834) in view of Kono et al. (US 5,917,693) in view of Lamansky et al. (US 2004/0004433 A1) in further view of Igarashi et al. (US 6,210,817). Tamano et al. discloses organo-electroluminescence devices comprising on a substrate an ITO electrode, a hole-injecting layer, a light-emitting layer, an electron-injecting layer and a cathode. The hole injecting material is taught to include an electrically conductive polymer (see col. 25, lines 64-67). Tamano et al. further teaches the hole injecting material may be sensitivity-increased by incorporating an electron-accepting material (see col. 26, lines 32-34).

Tamano et al. fails to teach polyaniline specifically as the electrically conductive polymer. Kono et al. teaches in analogous art electrically conductive polymer compositions comprising polyaniline and an electron acceptor (see abstract). It would have been obvious to one of ordinary skill in the art to have selected polyaniline for the electrically conductive

Art Unit: 1774

polymer of the Tamano et al. device, because one would expect the polyaniline to be suitable as the electrically conductive polymer of the Tamano et al. device, since it is described by Kono et al. as electrically conductive.

Tamano et al. also fails to teach specifically a compound according to applicant's formula 3 as the electron accepting material. Lamansky et al. teaches, in analogous art, that tetrafluoro-tetracyanoquinodimethane (F₄-TCNQ), which reads upon instant formula 3, is a known electron acceptor material for addition to a hole injecting buffer layer of an organic electroluminescent device (see par. 67 and 126). It would have been obvious to one of ordinary skill in the art to have selected F₄-TCNQ as an electron acceptor material for the Tamano et al. hole injecting layer, because Lamansky et al. clearly teaches the compound as an electron acceptor material for an OLED hole injecting buffer layer and one would expect the compound to be similarly useful as the electron acceptor in the Tamano et al. device. The hole injecting layer rendered obvious by Tamano et al. is deemed to read upon applicant's "buffer layer over the anode".

Tamano et al. fails to teach specifically that a hole transport layer is included in the device. Igarashi et al. teaches in analogous art that it is well known to have a hole transporting layer between a hole injecting layer and a light emitting layer in an organic luminescent device (see col. 14, lines 33-43). It would have been obvious to one of ordinary skill in the art to have added a hole transporting layer to the Tamano et al. device, because Igarashi et al. teaches hole transporting layers are conventional elements of organic luminescent devices that further aid hole transportation through the device and one would expect the addition of a hole transporting layer to the Tamano et al. device to similarly aid the device in better hole transportation through the device.

Art Unit: 1774

8. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamano et al. (US 5,811,834) in view of Kono et al. (US 5,917,693) in view of Lamansky et al. (US 2004/0004433 A1) in view of Igarashi et al. (US 6,210,817) and in further view of Epstein et al. (US 6,235,414 B1). The rejection of claim 3 is relied upon as set forth above. Kono et al. fails to specifically a particular *form* of polyaniline that is used as the electrically conductive polymer. Epstein et al. teaches emeraldine is a well known form of polyaniline useful in a charge injection layer of a light emitting device (see abstract and col. 4, lines (60-63). It would have been obvious to one of ordinary skill in the art to have selected the emeraldine form of polyaniline to use as the electrically conductive polymer, because Epstein et al. teaches it is a well-known and used form of polyaniline and would be expected to be similarly useful as a charge injector in other devices. Because the references disclose the same materials set forth by applicant, the redox properties of claims 23 and 24 are deemed to be inherent.

Response to Arguments

9. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday through Friday.

Art Unit: 1774

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dawn Garrett
Primary Examiner
Art Unit 1774